



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/822,005	04/12/2004	Hiroko Abe	12732-230001	1587

26171 7590 07/03/2007  
FISH & RICHARDSON P.C.  
P.O. BOX 1022  
MINNEAPOLIS, MN 55440-1022

EXAMINER
----------

NGUYEN, TUAN N

ART UNIT	PAPER NUMBER
----------	--------------

2828

MAIL DATE	DELIVERY MODE
-----------	---------------

07/03/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

TH

**Office Action Summary**

Application No.

10/822,005

Applicant(s)

ABE ET AL.

Examiner

Tuan N. Nguyen

Art Unit

2828

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 01 June 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1,6-11,15-17,21-23 and 30-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,6-11,15-17,21-23 and 30-36 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>06/01/07; 04/19/07</u> . | 6) <input type="checkbox"/> Other: _____  |

### DETAILED ACTION

1. Upon further reconsideration, all previous actions are withdrawn. Applicant's argument and remarks are moot in view this new rejection.

#### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or non-obviousness.
3. Claims 1, 6-11, 15-17, 21-23, 30-36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hosokawa (US 6660410) in view of Baird et al. (US 5260963).

With respect to claim 1, Hosokawa '410, shows and discloses a laser oscillator comprising: an optical resonator for and a pumping source for supplying pumping energy to the laser medium; a film containing a laser medium formed over a substrate (*Fig 1: 14, 18 film*

Art Unit: 2828

*containing laser medium over substrate*); an anode; and a cathode, wherein the laser medium comprises a luminescent layer (*Col 1: 5-20*)(*Col 25-26: Anode, cathode and laser medium on supporting substrate*) (*Fig 1: 10,14,16 excited laser medium with luminescent layer between cathode and anode*), wherein the luminescent layer includes a phosphorescent material dispersed into a host material at a concentration of not less than 10 wt% (*Col 23-24: 10-15, 55-65, 1-10 where phosphorescent is over 30 part by weight, hence concentration not less than 10%wt*) , and wherein in luminescence of the phosphorescent material, light is amplified by the optical resonator. The claim further requires an optical oscillator with resonator and a pumping source for supplying pumping energy to the laser medium and amplified by the optical resonator. Hosokawa '410 did not discreetly disclose an oscillator with resonator and pumping source pumping the medium. Baird et al. '963 discloses and shows a laser resonator and pumping source pumping a laser medium (*Fig 2: 80 laser medium, and optical resonator 108, 120, where 20 laser diode pumping source to medium 80 and amplified by optical resonator*). It would have been obvious to one of ordinary skill in the art to provide Hosokawa '410 with the laser medium as taught or suggested by Hosokawa '410, for the benefit of exciting the laser medium for emission, as shown by Baird et al.

With respect to claim 6, Hosokawa '410, shows and discloses a laser oscillator comprising: a film containing a laser medium formed over a substrate (*Fig 1: 14, 18 film containing laser medium over substrate*); an optical resonator for obtaining a laser beam; a pumping source for supplying pumping energy to the laser medium; an anode; and a cathode (*Fig 1: 10, 16 anode cathode*), wherein the laser medium comprises a luminescent layer, wherein

Art Unit: 2828

the luminescent layer includes a host material and a phosphorescent material dispersed into the host material at a concentration of not less than 10 wt% layer (*Col 23-24: 10-30, 55-65, 1-10, 1-67 where luminescent layer include host material and phosphorescent material is over 30 part by weight, hence concentration not less then 10%wt*), wherein the anode and the cathode include a light transmitting property, wherein the luminescent layer is interposed between the anode and the cathode (*Fig 1: 10,14,16 excited laser medium with luminescent layer between cathode and anode*), and wherein in luminescence from an excimer state of the phosphorescent material, unidirectional light across the film containing the laser medium is amplified by the optical resonator. The claim further requires an optical oscillator with resonator and a pumping source for supplying pumping energy to the laser medium and amplified by the optical resonator. Hosokawa '410 did not discreetly disclose an oscillator with resonator and pumping source pumping the medium. Baird et al. '963 discloses and shows a laser resonator and pumping source pumping a laser medium (*Fig 2: 80 laser medium, and optical resonator 108, 120, where 20 laser diode pumping source to medium 80 and amplified by optical resonator*). It would have been obvious to one of ordinary skill in the art to provide Hosokawa '410 with the laser medium as taught or suggested by Hosokawa '410, for the benefit of exciting the laser medium for emission via amplification of the resonator, as shown by Baird et al.

With respect to claim 7, Hosokawa '410, shows and discloses a laser oscillator comprising: a film containing a laser medium formed over a substrate substrate (*Fig 1: 14, 18 film containing laser medium over substrate*); an optical resonator for obtaining a laser beam; a pumping source for supplying pumping energy to laser medium; an anode; and a cathode,

Art Unit: 2828

wherein the laser medium comprises a luminescent layer, wherein the luminescent layer includes a host material and a phosphorescent material dispersed into the host material at a concentration of not less than 10 wt% layer (*Col 23-24: 10-30, 55-65, 1-10, 1-67 where luminescent layer include host material and phosphorescent material is over 30 part by weight, hence concentration not less than 10%wt*), wherein the luminescent layer is interposed between the anode and the cathode (*Fig 1: 10,14,16 excited laser medium with luminescent layer between cathode and anode*), and wherein in luminescence from an excimer state of the phosphorescent material, unidirectional light contained within a surface composed of the film containing the laser medium is amplified by the optical resonator. The claim further requires an optical resonator and a pumping source for supplying pumping energy to the laser medium and amplified by the optical resonator. Hosokawa '410 did not discreetly disclose an oscillator with resonator and pumping source pumping the medium. Baird et al. '963 discloses and shows a laser oscillator with resonator and pumping source pumping a laser medium (*Fig 2: 80 laser medium, and optical resonator 108, 120, where 20 laser diode pumping source to medium 80 and amplified by optical resonator*). It would have been obvious to one of ordinary skill in the art to provide Hosokawa '410 with the laser medium as taught or suggested by Hosokawa '410, for the benefit of exciting the laser medium for emission via amplification of the resonator, as shown by Baird et al.

With respect to claim 8, Hosokawa '410, shows and discloses a laser oscillator comprising:

a film containing a laser medium formed over a substrate (*Fig 1: 14, 18 film containing laser*

Art Unit: 2828

*medium over substrate*); an optical resonator for obtaining a laser beam; a pumping source for supplying pumping energy to the laser medium; an anode; and a cathode, wherein the laser medium comprises a luminescent layer, wherein the luminescent layer includes a host material and a phosphorescent material dispersed into the host material at a concentration of not less than 10 wt% (*Col 23-24: 10-30, 55-65, 1-10, 1-67 where luminescent layer include host material and phosphorescent material is over 30 part by weight, hence concentration not less than 10%wt*), wherein the optical resonator comprises a plurality of reflective materials, wherein the anode includes a light transmitting property (*Col 7: 10-20 it is inherently obvious the resonator comprises of reflective materials so reflectivity can occur, and it is inherent that the anode includes light transmitting property so that electroluminescence can be emitted*)(*Col 25: 38-40 anode transparent*), wherein the luminescent layer is interposed between the cathode and the plurality of reflective materials (*Fig 1: 10,14,16 excited laser medium with luminescent layer between cathode and anode and reflective materials*), and wherein in luminescence from an excimer state of the phosphorescent material, unidirectional light across the film containing the laser medium is amplified by the cathode and the plurality of reflective materials, as shown by Baird et al.

With respect to claims 9-11, 30, 34 Hosokawa '410, shows and discloses wherein a hole transporting layer contacting with the luminescent layer is formed between the anode and the luminescent layer, the hole transporting layer has an ionization potential lower than that of the luminescent layer or the host material, or the hole transporting layer has an ionization potential

Art Unit: 2828

higher than that of the luminescent layer or the host material with an energy gap of not more than 0.4 eV (*Col 23-24: 10-40 hole transport layer with ionization 5.5ev or less*).

With respect to claims 15-17, 31, 35 Hosokawa '410, shows and discloses wherein the phosphorescent material generates luminescence having two or more peaks in a wavelength region of not smaller than 500 nm and not larger than 700 nm, and any one of the two or more peaks is excimer emission (*Col 1: 10-35 phosphorescent material having three peaks and wavelength about 488nm which is not larger than 700nm (Col 5: 1-5)*).

With respect to claims 21-23, 32, 36 Hosokawa '410, shows and discloses wherein the phosphorescent material includes an organic metal complex with platinum as its central metal (*Col 23: 15-30 organic complex with platinum*).

With respect to claim 33, Hosokawa '410, shows and discloses a laser oscillator comprising: a film containing a laser medium formed over a substrate (*Fig 1: 14, 18 film containing laser medium over substrate*); an optical resonator for obtaining a laser beam; a pumping source for supplying pumping energy to the laser medium; an anode; and a cathode, wherein the laser medium comprises a luminescent layer, wherein the luminescent layer includes a host material and a phosphorescent material dispersed into the host material at a concentration of not less than 10 wt% (*Col 23-24: 10-30, 55-65, 1-10, 1-67 where luminescent layer include host material and phosphorescent material is over 30 part by weight, hence concentration not less than 10%wt*), wherein at least one of the anode and the cathode includes a light transmitting



Art Unit: 2828

property (*Col 25-26: 38-40, 20-19 at least one of anode or cathode includes light transmitting property, so light emission can be seen Col 7: 10-20*) wherein the luminescent layer is interposed between the anode and the cathode (*Fig 1: 10,14,16 luminescent layer between cathode and anode*), and wherein in luminescence from an excimer state of the phosphorescent material, light is amplified by the optical resonator. The claim further requires an optical resonator and a pumping source for supplying pumping energy to the laser medium and amplified by the optical resonator. Hosokawa '410 did not discreetly disclose an oscillator with resonator and pumping source pumping the medium. Baird et al. '963 discloses and shows a laser oscillator with resonator and pumping source pumping a laser medium (*Fig 2: 80 laser medium, and optical resonator 108, 120, where 20 laser diode pumping source to medium 80 and amplified by optical resonator*). It would have been obvious to one of ordinary skill in the art to provide Hosokawa '410 with the laser medium as taught or suggested by Hosokawa '410, for the benefit of exciting the laser medium for emission via amplification of the resonator as shown by Baird et al.

### ***Communication Information***

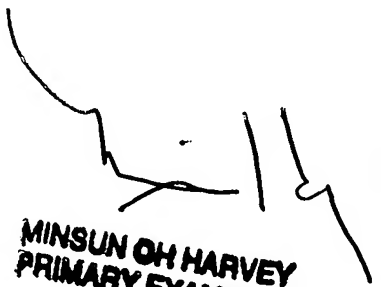
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuan N Nguyen whose telephone number is (571) 272-1948. The examiner can normally be reached on M-F: 7:30 - 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Harvey Minsun can be reached on (571) 272-1835. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2828

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Tuan N. Nguyen

A handwritten signature in black ink, appearing to read "Tuan Nguyen", written in a cursive style.A handwritten signature in black ink, appearing to read "Minsun Oh Harvey", written in a cursive style.  
**MINSUN OH HARVEY  
PRIMARY EXAMINER**